that work, making it, if possible, still more valuable to students of American mollusks.

To recapitulate : generic names are those by which animals are catalogued, therefore should not be changed without overwhelming evidence in favor of the change. This value of the genera in cataloguing has not been sufficiently emphasized.

A PROVISIONAL KEY TO THE SUBGENERA AND SPECIES OF NORTH AMERICAN LYMNAEIDS.

BY HAROLD S. COLTON.

The following is a preliminary key to some of the best known species in the genus Lymnaea. It is based on a careful study of the wealth of material in Baker's Lymnaeidae of North and Middle America. To this the writer has added a little that has come under his observation during the past eight years that he has been working with this group.

It must be noted that *L. auricularia* appears in two places in the key. This is because the radula of the Philadelphia form is different from the radula of the Chicago form.

It must be remembered also, as stated in the preceding article that the radula and character of the reproductive organs are the important characters in classification as the shell is such a generalized form. This being the case it will be of value in locating but 33 species and varieties as the other 73 have been described by shell characters alone. When they have been studied the key no doubt will have to be much modified.

The writer found it impossible to sub-divide the groups in his key. The species within a group are distinguished by shell characters alone, and although one familiar with species can distinguish them without much difficulty, it is almost impossible to state the differences in a few words.

This key is intended as a supplement to that of Baker p. 125. It makes no pretense of completeness. The writer, therefore, would be glad to hear of any practical difficulties arising in its applicaton.

In the following key the ratio between the aperture length and the shell length is referred to as the "ratio."

GENUS LYMNAEA:—

Fresh-water pulmonate mollusks. Shell : normally dextral, rarely sinistral, ovately oblong to elongate. Animal: with a short, wide, rounded foot. Tentacles : flattened. Central tooth of the radula unicuspid ; laterals bi-or tri-cuspid. Male and female genital openings separate and on the right side. Mantle margins contained within the shell.

(I) The first lateral tooth of the radula has three cusps, the others two.

The epiphallus longer than the penis. Color pattern of the mantle conspicuous. Adult with a flaring lip (Subgenus Radix) *L. auricularia* p. 179

(II) The lateral teeth of the radula with two cusps.

(1). 1st cusp grooved : epiphallus less than penis. (Subgenus *Acella*) *L. haldemani.* . . . . p. 192

(2). 1st cusp ungrooved.

(A) Axis gyrate : epiphallus ¼ of penis—(Subgenus *Lymnæa*)—*Stagnalis* Group. . . . p. 136

(B) Axis not gyrate. Epiphallus equal or less than the penis but over ½. (Subgenus *Galba*).

(a) with not evident spiral sculpture—*Galba* Group . . . . . p. 200

(b) with evident spiral sculpture.

(aa) Ratio between two and three—*Palustris* Group . . . . . p. 298

Ratio between 1½ and two.

(aaa) Ovate shell, narrow inner lip, no true umbilicus—*Catascopium* Group . . p. 377

(bbb) Bulbous shell, wide inner lip and umbilicus—*Emarginata* Group . . . p. 408

(III) Lateral teeth with three cusps.

(1) Axis gyrate.

(A) Epiphallus less than the penis ; shell succiniform Subgenus *Pseudosuccinca*—*Columella* Group . p. 162

(B) Epiphallus less than the penis.

(a) Shell thin and transparent—color pattern of mantle visible through shell—lip flaring in adult—ratio less than 1½. (Subgenus Radix) *L. auricularia* . . . . p. 179

(b) Shell solid bulimiform—ratio greater than 1½. (Subgenus Bulimnea). *L. megasoma* . . . . . p. 183

(2) Axis not gyrate (Subgenus Pseudogalba). Epiphallus usually shorter than the penis.

(aa) Inner lip flattened out and excavated. *L. umbilicata* . . . . . p. 236

(bb) Inner lip erect. *L. parva* . . . p. 243

(b) Epiphallus usually longer than the penis.

(aa) 10 mm. long, has 5 whorls *L. humilis.* . . . . . p. 25

(bb) 10 mm. long, has 4 whorls *L. obrussa.* . . . . . p. 270